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THE SOUTHERN APPALACHIANS

A Resource Reservoir

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

Editorial Notes

The Southern Appalachians, in general, include the Blue Ridge Mountains or eastern division, the Appalachian Valleys and Ridges to the west or the central division, and the Appalachian Plateaus called the western division. Along the southeastern border and along most of the northwestern border are well-defined escarpments separating the plateaus from the adjacent country. Occasionally in these articles somewhat different boundaries are used.

CONTRIBUTORS: CARL C. TAYLOR is Head of the division of farm population and rural welfare, BAE.

R. J. SAVILLE, formerly on the faculty of University of Louisiana, is the Appalachian regional leader of farm-management studies, BAE.

ALLAN F. MATTHEWS is an economic geologist in the Metal Economics Division, Bureau of Mines. (Manuscript published by permission of the Director, Bureau of Mines, U. S. Department of the Interior).

WILLIAM A. DUERR, forest economist in the Forest Service, is on the staff of the Appalachian Forest Experiment Station, Asheville, N. C.

KENNETH R. KENNEDY is on the Information Service Staff of the TVA.

ROBERT M. HOWES, community planner, is in the Dept. of Regional Studies, TVA.

ALLEN EATON, Director of Department of Arts and Social Work, Russell Sage Foundation, wrote the authoritative *Handicrafts of the Southern Highlanders.*

PAUL F. DOUGLASS is President of American University, Washington, D. C.; O. V. WELLS is chief program analyst, BAE; RALPH H. ROGERS, an agricultural economist, is assistant to the Chief of BAE in charge of administration; PAUL H. JOHNSTONE, versed in subsistence homesteads, is Assistant Chief, Far East Enemy Division, Foreign Economic Administration; HELEN W. ATWATER was formerly editor of the JOURNAL OF HOME ECONOMICS; ARTHUR RAPER is a social science analyst, BAE; C. EDWARD BEHRE is assistant to the Chief of the Forest Service; JOHN M. GAUS is Chairman, Department of Political Science, University of Wisconsin.

General
Dep. - U.S. Govt.

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Human Resources OF THE *SOUTHERN APPALACHIANS*

By CARL C. TAYLOR. *Within this region wide contrasts are found among the people but as the Highlanders are the most distinctive and the most cohesive, interest naturally centers on them.*

HUMAN RESOURCES are more than manpower, more than mere people, and more than aggregates of population, though they are all of these separately and combined. They are always raw resources but also always finished products. Because they can't be measured they are most often either known by population counts, which reduces them to mechanical numbers, or are advertised as Nordics, Master Races, One-Hundred-Percent Americans, or some other superior breed—which is just so much bunk. These statements are made not as wisecracks but to show how difficult it is to discuss things so qualitative as human resources.

Human resources are sometimes assumed to be measured by levels of living: by the houses in which people live, the food they eat, the clothes they wear, and the formal education they have. These are results, not causes; they are products of social organization, not raw resources as such. Furthermore, persons who discuss these end products generally emphasize deficiencies or liabilities, not resources or assets. There has been an epidemic of such discussion during the last 15 years about the people who live in the Appalachian Highlands. My purpose is to look at the other side of the shield.

No one is wise enough to separate human resources from the basic physical resources and their economic organization in any region or area of the United States. But one doesn't need to know much about the Appalachian region to be convinced that the amount and character of the population are not to be explained solely by the amount and organization of the physical and economic resources of the region.

The amount and character of population are at least as independent of physical resources as they are dependent on them. For once we shall discuss the human resources of the Appalachians without discussing the soils and the sizes of farms in the area, or the low incomes, and low levels of living of the people who live in the mountainous parts.

Reservoir

The Appalachian area is a reservoir of population. A reservoir is a place where supplies are stored and furnished at the right time to places where they are needed. There are places in the United States that consistently need population supplies. The great cities of the Nation, for instance, must draw constantly on population surplus areas or must decrease in size, and be short on labor, and in other human aspects. What would happen if the Nation had no population reservoirs?

Ever-Flowing

More than 17 million persons live in the six States of the Southern Appalachian region (Virginia, West Virginia, Kentucky, Tennessee, North Carolina, and Georgia); more than 5 million live in the 205 highland counties of these States. In 1930, 25.3 percent of all persons born in these States were living elsewhere and the net population contribution to the remainder of the Nation was 2,500,000 persons. This Appalachian reservoir can be trusted, for it constantly renews its own source of population supply, and pours it into the Nation's population-deficit areas. This region has more people than it needs at any time, yet during the depression it furnished a haven for thousands who had gone out of the mountains to help do the work of the Nation but came back home when jobs elsewhere caved in. When the depression was over and the National Defense and War programs came on, it again sent them where workmen were needed. Between 1930 and 1940 the rural-farm population of five of these States (Georgia not included) contributed 780,000 persons to other States through migration. At the same time enough babies were born in the Appalachian States to give the area 273,000 more persons in its population reservoir than were lost by migration.

If there were to be no migration out of these States during the present decade, 700,000 young men would reach the age of 20 years to take the places of the 280,000 males of working age who will die or reach the age of 65 by or before 1950. In other words the Appalachian States can fill all possible male vacancies in the area and have left 420,000 workers to go elsewhere.

To Arms

Probably no other area has furnished as large a percentage of its human resources to defense and war enterprises as has the rural-farm population of these six States. It is estimated that to the end of the year 1943, a million actual or potential farm workers 14 years of age or over had left farms in this area. Through enlistment or induction into the armed forces, through migration, and through shifts into nonfarm work in the region they have furnished the human resources to carry on defense and war activities.

The Highlanders

No one can measure a person. Therefore no one can appraise the Appalachian people as resources in other terms than numbers. But it is possible to describe them; to tell who and what kind of persons they are. Those in the highland areas are different from those in the other areas of the six States. They are the purest American stock in the United States. In 1930 and in 1940, only 1 percent of the white population in the area was foreign born. Their forebears first came in about 150 years ago and most persons in these Highlands can trace their lineage back to the days of Daniel Boone. They are called our contemporary ancestors, because they have retained so many characteristics of their pioneer forefathers. They are the sort of people we brag about as "Americans."

Early settlers came into the Appalachians from Pennsylvania and from the lowlands of Virginia and North Carolina. Some are of Pennsylvania German and Dutch origins but most are of English, Irish, and Scotch stock. Because those in the Highlands have been isolated and self-sufficient and are more like their grandparents than the rest of us, they have been called "hillbillies." But they are self-sufficient not shy people; independent not introvert persons. When they go out of the mountains they light on their feet, generate their own steam, and are considerably guided by their own headlights, whether they enter industry, business, politics, or institutions of higher learning. Their personality and character resources can't be measured, but every one who knows them knows that these qualitative descriptions of them are true.

About all that most persons know about Appalachian culture is that "hillbilly music" and square dances come from that area. A few know about their handicrafts and ballads. These, however, are only clues to the culture of the Highlands. Culture consists of a cluster of ways of doing and thinking which hang together as a whole technique of life. Songs, dances, and handicrafts are no more than symbols of Appalachian culture. The fabric of the culture is found in the manner, means, and methods by which the people make their living, the day-by-day ways they live, and the way they think and feel about these and other things. Many phases called culture aren't culture at all, technically speaking, and many so-called cultured persons have so few stable relationships and values that they are almost outside of any and all culture groups.

Distinctive

This Highland section comes as near to having a culture of its own as any section in the United States. Its culture is old, in terms of our history, and is stable. That is why it is unique and why it seems odd to many people. But who is to say that it may not be as great a loss to lose the culture which was built by our pioneers as it is to lose our original topsoils?

Family cohesion, family pride and loyalty, and large families are a part of the native Appalachian culture. That is why the area is a national population reservoir. Individual and family self-sufficiency is another part. That is one reason why low material levels of living persist there. The farm families

produce a larger percentage of their own food than is true in any other area. Many still spin and weave their own cloth; many build their own houses, make their own furniture, their own farm implements and tools. They still gather or manufacture their own medicines and do a lot of their own doctoring and practically all their nursing. They create, keep alive, and enjoy their own folk games, dances, and songs, and make many of their own musical instruments. A recognizable part of their handicraft is real art and they still create ballads.

Rich Contributions

Most persons know more about a few famous mountain feuds than they do about local neighborhood and community cohesions. A very few of the hillbilly songs tell about these feuds, but intimate and right family, neighborhood, and community solidarity has created a great body of folk art which is a rich contribution. These social gifts must arise out of a type of life that begets creativeness, else why the creations? And what other area has created more?

National Assets

Stability can be stultifying and personal self-sufficiency can cut off the influence of outside stimuli, but both can be and most often are citizenship assets. They are listed here as human resources because they are the materials out of which so many other things can be and are made. They exist in the Appalachians in abundance, are being sustained and created there by the daily ways of life.

Resources are assets, not liabilities. Therefore this article has dealt with the human assets not the deficits and deficiencies of the Appalachians. Some of these assets are the capacity and tendency to generate population and manpower, to develop independent and self-sufficient personalities, to preserve culture, and to create cultural arts. If these are not assets, what are they?

Human Values

It is possible that a greater importance should be attached to the human values represented in the country arts than in many things impressively demonstrated in statistical tables. Obviously, human values are the ultimate criteria by which a campaign against Japanese beetles or an inquiry into corn and cotton prices must ultimately be judged.

—M. L. WILSON

FARMING

and *Farming Prospects*

By R. J. SAVILLE. *Farming shows sharp contrasts in this region therefore more than usual discrimination is needed when making adjustments and the farming should be integrated with the other activities.*

FARMING in the Southern Appalachians is experiencing definitely favorable adjustments in response to heavy wartime demands for farm products. There are many severe obstacles to overcome. But farmers have found that they can meet an urgent need by making the best use of their resources.

It is hardly possible to describe Appalachian agriculture and its prospects as a single pattern, for the region comprises widely different land and farming conditions in its 205 counties. The larger segment includes the mountains and plateaus, while a smaller but very vital part is the interspersed valleys. Each has some problems not found in the other, but in the main the problems of the region affects agricultural developments in each area.

In the valleys most of the land is in farms, and of the land in farms a high percentage can be used for crops. The topography is level to rolling. The limestone formations have provided a highly fertile soil which responds well to agricultural use. These conditions have favored large-size fields which permit greater use of mechanical power and heavy farm machinery and the farms are large enough so that efficient use of labor is possible. The proportion of farms having high incomes, as well as the average level of incomes, indicates a well-advanced commercial agriculture.

It is mainly in the valleys that one finds the highly specialized farms—orchards, cattle ranches, dairy farms, and others. Transportation facilities are developed so that surplus products from these farms can easily reach the markets. Heavy total capital requirements per farm, more livestock of all kinds, and larger acreages of crops all indicate the present adjustment that exists between people and farming resources.

The mountain area presents a sharply different picture. The rough topography, shorter growing season, large reaches of timber-covered land, and frequent rock outcrops limit severely the farming possibilities. The natural fertility of the soils—which come mainly from sandstones, crystalline rock, and shales—is low and is quickly reduced under cultivation. Heavy rainfall and the rapid run-off cause serious erosion to cultivated land and tend to flood the level land along the narrow valleys.

Transportation facilities are hard to develop, and maintaining a permanent market for small surpluses of farm products is most difficult.

Under these physical barriers of the mountains, farming there has developed around a subsistence basis. Much of the crop production is on small fields, comprising little patches of land in the coves and narrow valleys, on the hillsides, and on the plateaus. Livestock usually includes what the feed supply can support, which frequently means hardly enough for good subsistence for a rural family. Farming under these conditions limits the use of farm machinery and power severely, which means unusually high requirements of man labor per unit of production. As only small surpluses of farm products are available for market, cash incomes from farming are very small. Consequently, there is constant pressure for income-producing work.

Contrasts

Under these quite different characteristics of the mountain and the valley agriculture, responses to need have varied widely. As the main population increase has been in the mountain area, that is where the greatest pressure on land for subsistence farming has developed, and the agriculture has been adjusted to meet such a change. The valleys were already occupied and the land held in farming units, so that the immediate effect of population growth on agriculture has been much less there. To meet the need in the mountains, the acreage per person has been reduced still further and more land has been cleared.

There has been a constantly changing situation in land use for farming in the Appalachians. The total acreage of land in farms has been downward since 1900, and the cropland has declined at a more rapid rate. Some land formerly in farms has been disposed of to nonfarm owners. Cropland has been shifted to pasture or allowed to reforest. As some fields were abandoned because of erosion and loss of fertility, new fields were opened for cropping. But this is partly because other work in the region is so uncertain.

Tie-Up

Agricultural land use is vitally tied up with other land uses, and with industrial employment. Nearly two-thirds of the mountain area is not in farms, and, including land in farms, about three-fourths is used for other purposes than crops and pastures. The mountain lands are more suitable for uses which require less labor and return a lower average annual income per acre than does practicable farming. These uses, such as forestry, recreation, grazing, rural homes for the industrially employed, should be fully developed as income-producing resources that will provide work and income for the people of the area. Farming should be kept at a minimum and continually adjusted to the most suitable land. But on farms, the land not in crops and pasture should be developed into its appropriate land use, for the profitable utilization of all resources.

The nonfarm occupations provide work for large numbers of people in the region, including many part-time farmers. More than 30 percent of the farmers outside of the valleys are reported as having annually worked off the farm 100 days each, or more. When industrial activity is high

wages from other work ease the pressure on the limited farm resources. Only if such employment can be maintained at a relatively constant pace will there be a real chance for those who are entirely dependent on farming to make suitable adjustments to improve their own incomes. But when mines shut down, sawmills stop, and industrial activity drops to a low level, unemployment prevails and the people turn to the land for subsistence.

Outlook

Out of this background, what are the prospects for agriculture in the Southern Appalachians in the period ahead? The impacts of war have made some sharp changes in trends and give occasion for suggesting a desirable pattern of readjustment. The heavy demands for manpower, for raw materials of mines and of forests, and for foods, have provided chances for adjustment. Large outmigration for industrial work and full employment in mining, forestry, and other occupations within the region have reduced the pressure on farming. But there is still a surplus of workers in the Appalachians to handle farming at its maximum capacity, except for some specialized systems of farming.

For permanent improvement in agriculture, favorable conditions for change must continue long enough so that the needed adjustments may be worked out. Most important of all is to keep the way open for continued migration of excess manpower from the region, and for continued industrial development within the region. Some of those leaving might find permanent livelihood in agriculture elsewhere. For those who remain in farming, improved farm incomes must come from adjustments in sizes and types of farms and much wider adoption of effective management practices to increase rates of production.

The best suggestions on possibilities for agriculture in the Appalachians may be drawn from recent studies of war-time production capacity and from plans for the long-run period to follow. Agricultural workers have suggested desirable adjustments which will help the region to realize its maximum contribution to agricultural production. Insofar as these can be achieved some measure of improvement can be claimed.

Farming should be shifted to the better land for agricultural use, with fewer farms and larger average-sized farming units. Emphasis should be given to systems of farming that increase livestock enterprises, particularly dairying and poultry, and to providing more pasture and feed supplies to maintain such livestock. Greater effort should be directed at increasing the use of fertilizers and lime, and in the adoption of other management practices that will improve crop yields and rates of livestock production. Larger acreages of intensive crops, such as commercial fruits and vegetables, cotton and tobacco, might well be included

Reason

Reason has never failed men. Only force and repression have made the wrecks in the world.

—William Allen White

where markets are available. Most of the Appalachians are already near maximum production capacity so far as acreage for cropland and pasture is concerned. Expanded production must be through greatly improved yields from the land.

Stop Light

These suggested adjustments should reduce sharply the number of subsistence farms. No more total land area should be brought into farms, though some further shifting of land in farms is desirable to take in all land most suitable for farming, and to take out of farming that which is least suited for farm use. Cropland should be stabilized at slightly lower levels, with the idle land that has been in crops restored to crop use or permanently shifted to pastures and forests. Finally, increased acreages of feed crops, mainly small grains and hay, will help to supply the feed for the livestock enterprises.

Go Signals

Changes such as these are quite possible. Better care of land will reduce erosion, provide drainage, and protect level lands from serious overflow. Widespread adoption of recommended practices in the application of phosphates and lime, together with rotations containing less row crops, will provide increased crop and pasture yields. These agronomic practices will provide more abundant feed supplies for livestock, and the nutritional value of the feeds will be reflected in better livestock production. Greater use of special farm equipment suitable to farms in the area will improve the efficiency of labor and encourage needed shifts in cropping. More dairy cows and poultry will make the best use of the feeds that should be expanded, and will supply urgently needed livestock products of high value. Some further increase in intensive crops will mean much-needed income and will give additional employment, without reducing seriously the production of the crops so displaced. The Tennessee Valley Authority and agencies working with it have gone far in developing suitable practices for farmers to help them make the changes that are needed.

Integration

But we must not overlook the caution that these opportunities suggest. There is always the danger that industry will not make full use of its developing possibilities and keep attractive employment open long enough for farmers to be drawn off the land that is least suited to farming. Nor would it permit adjustment of other farms to larger-sized units and more suitable soils, or to shift the systems of farming, so that increased labor efficiency and financial returns from farming may be realized.

The agricultural economy must be closely fitted to the industry and commerce of the region. There is need for serious study of the possibilities of integrating the new industrial development with agricultural production and, with the utilization of power and other resources, in such a way that farm and industrial production will supplement each other in providing the products needed in a higher level of living for the people of the region.

Thriving Industries FROM *Mineral Wealth*

By ALLAN F. MATTHEWS. *Resources of the Southern Appalachians include a wide variety of minerals. The juxtaposition of some of these particularly enhances their usefulness—now and for the future.*

GEOLOGIC upheavals that raised the Blue Ridge Mountains and sedimentary activities that paved its flanking valleys have stored a wealth of minerals in the Southern Appalachian province. Comprising less than 4 percent of the surface of the United States, this region digs 12 percent of the country's mineral output—a tonnage worth 800 million dollars annually. Its mining industry, moreover, is so interrelated and well balanced as to constitute a classic.

Modern industry is founded upon the power and chemistry of coal, which is abundant in Southern Appalachia. West Virginia and Kentucky rank second and fourth, respectively, among coal-producing States, and together with neighbors in the same region they mine 41 percent of the Nation's solid fuel. There is, fortunately, still plenty of unmined coal in the Southern Applachians—380 billion tons, enough to last 1,500 years at current extraction rates. The coal is easy to mine because the seams are nearly horizontal and often outcrop on hillsides, allowing the mineral to be conveyed by gravity to barges on the rivers below.

Petroleum, the other great mineral fuel, also exists in the region, but in relatively smaller quantities. Although a leading producer at the turn of the century, the Southern Appalachians were subsequently outclassed by flush wells farther west, and the 8 million barrels now pumped annually is less than 1 percent of the country's output. This is enough, however, to supply about one-fifth of the gasoline requirements of the region and three-fifths of its fuel oil. Proved petroleum reserves in West Virginia and Kentucky total 82 million barrels—a 10-year supply at present pumping rates—but new discoveries and improved methods of extraction will surely enable a much greater yield.

Natural gas, a geologic companion of petroleum, exists in large quantities in the region. George Washington in 1775 noted in his diary the "burning springs" on the Kanawha River. Utilization of natural gas dates from its discovery in a salt-water well at Charleston, W. Va., in

1815. The annual marketed output of Southern Appalachia is 10 percent of the United States supply. Reserves are believed to be very large. About half of the production is consumed locally and the remainder piped elsewhere. Less than a fourth of the natural gas is burned to heat buildings; the bulk of it is used to pump and refine petroleum, to drive power plants, and to furnish clean and controlled heat for the manufacture of metallurgical products, portland cement, ceramics, and chemicals. Natural gas appears to be an ideal agent for the progressing business of dehydrating fruits and vegetables.

The principal importance of fuel resources is their collaboration with metals in supporting basic industries, particularly the making of iron and steel and the utilization of their products. Rarely do coking coal, iron ore, and fluxing limestone—the basic ingredients of ironmaking—occur together in a single locality, but this happy association is found at Birmingham, Ala., in a basin about 75 miles long and 40 miles wide. Localization of raw materials is enhanced by adequate labor, temperate climate, and nearby markets. These factors make Birmingham the second largest iron-mining district in the country, even though, in contrast to the Lake Superior district, its ore is low-grade (37 percent iron) and must be mined principally by underground methods. The Birmingham district produces 8 percent of the country's iron ore and 7 percent of its pig iron. Iron ore is also extracted elsewhere in Alabama and in Georgia and Tennessee. Southern Appalachian mines yield 12 percent of the national output, and known reserves are expected to last 150 years at current consumption rates.

Meaning

The name, Appalachians, itself, excites curiosity. We are told that it means "those by the sea," and was the name of a southern Indian tribe.

—Drawn from
U. S. Geological Survey

The metallurgical process of converting pig iron to useful steels requires large quantities of ferro-alloys. Most of the ores from which these alloys are derived are imported, yet some occur in the Southern Appalachian province. Metallurgical-grade manganese ore is mined, and the region holds perhaps one-eighth of the Nation's reserves. A little chromite has been extracted. Steels for high-speed cutting tools generally contain tungsten, which was found only a few months ago in an extensive deposit in the mountains of North Carolina. Titanium, used to remove impurities from molten steel and to coat welding rods, is also mined in the region. Hydroelectric power, river transportation, labor supply, and salt and lime deposits were factors inducing the establishment of a ferro-alloy plant and a nickel refinery in West Virginia to treat ores imported from foreign countries; these plants rank

West Virginia third in the country as a ferro-alloy producer.

Another Southern Appalachian industry based on outside ores is aluminum, so fundamental in the production of airplanes. Bauxite from Arkansas and the Guianas is converted to alumina, much of which is then reduced at Alcoa, Tenn. The plant there turned out 40 percent of the aluminum metal made in the United States in 1940, although its relative standing has been reduced somewhat in subsequent years by new projects in other regions of the country. Hydroelectric power seems to be the dominant factor in the location of aluminum refineries.

Smelter

Copper for electrical manufactures, ammunition, and power and communication lines has been mined at Ducktown, Tenn., since 1847. The ore, supplemented by small quantities from North Carolina, is treated in a local smelter, whose copper output is about 1 percent of the United States total. Ducktown is the second largest copper-mining district east of the Rocky Mountains, and its reserves are believed to be adequate for some years to come. The smelter also yields important chemicals, bullion, and iron sinter.

Zinc for galvanizing and brass-making is mined in Tennessee and Virginia—the country's fourth-ranking district and one that produces ores containing 60,000 tons of zinc annually or 8 percent of the United States output. A little lead is mined in the same district. In West Virginia are two smelters treating zinc ores from other regions. Several hundred ounces of gold and some 40,000 ounces of silver are recovered annually at Ducktown. Limited quantities of the precious metals are also mined spasmodically in other Appalachian localities.

In addition to the fuels, there are numerous nonmetallic minerals important to the economy of an area. One of the most significant is fertilizer, particularly in the Southeast, where large quantities of this commodity are required. Although the Appalachian Valleys are notably fertile, the borderlands are not. Nitrogen for fertilizers and explosives is produced at a large plant in Charleston, W. Va., by atmospheric fixation and at coke ovens in coal-producing States. A third of the phosphate rock supply of the United States comes from Tennessee, the second largest producer. Reserves are expected to last a century.

Paradox

Phosphate rock is converted to usable fertilizer by sulfuric acid, which has a multitude of uses and which is derived from elemental sulfur or pyrites. Ducktown, Tenn., and Cliffview, Va., are the first and third largest pyrites-mining districts, respectively, in the United States. When cupreous pyrites were first smelted for copper at Ducktown, the sulfurous fumes set free soon made a desert of the immediate countryside. This forced the operator to neutralize the fumes, resulting in one of the largest sulfuric acid plants in the world and netting the company more income than is derived from the copper! Most of this acid is used to treat Tennessee phosphate.

Suitable building materials are decided assets to any area. Sand and gravel are ample in the Southern

Appalachians. Limestone, which floors the valleys of the region, is important not only as a producer of fertile soil and a flux for iron ore but also as a construction material and basic chemical. Crushed limestone makes good country roads and is burned with shale to manufacture portland cement. Deposits of gypsum and slate are worked in Virginia.

Georgia and Tennessee quarry about 60 percent of the Nation's marble. Building and monumental Georgian marbles are highly crystalline and are colored white, gray, bluish, or pink. Gray and light pink marbles quarried in Tennessee are used principally in interiors for floors, steps, and wainscoting. Alabama is noted for a pure, low-porosity marble, some of statuary grade. Dimension limestone, sandstone, verde antique (serpentine "marble"), and greenstone are also quarried in the Southern Appalachians. The American soapstone industry is centered in Virginia, where the soft rock is cut for furnace blocks, wainscoting, laboratory sinks, and switchboards.

Combinations

The juxtaposition of lime, salt, coal, and water in the region has resulted in the establishment of alkali and chlorine plants in the Virginias and is the basis of a large and growing synthetics industry. Plastics, nylon, and plexiglas, for example, are made in Tennessee.

A strategic mineral that occurs in Southern Appalachia is mica, which is an essential insulator material in the manufacture of radio parts and electrical equipment. North Carolina alone supplies over half of the country's output, and additional quantities come from neighboring States.

Largest

Several branches of the ceramics industry are well developed in Southern Appalachia. Potteries were established in early days in West Virginia to take advantage of the clay deposits there, and in order to avoid dislocating skilled workers they remained even after the local raw material was considered too inferior to use. One is now the largest dinnerware plant in the world. Georgia and North Carolina are leading suppliers of china clay (kaolin), and ceramic fluxes such as feldspar, spodumene, and aplite are also found locally. West Virginia is the largest producer of glass sand (over 99.8 percent pure), but the fact that it has more than 40 glass plants is due partly to the availability of natural gas. A factory for making optical glass was built by the Government at Parkersburg, W. Va., in 1942.

Refractory materials such as fireclay, olivine, vermiculite, bauxite, and kyanite are prevalent. Reserves of the first three are very large, and olivine is being investigated as a possible source of magnesium metal. Abrasives in the region include quartz, garnet, corundum, tripoli, grindstones, and millstones.

The paint industry consumes limonite, talc, titanium, and barite mined in the Southern Appalachian region. As titanium white is now the largest-selling white pigment, the sizable titanium reserves in Virginia are important. The region produces half of the country's barite, used to make lithopone and glass and, in larger quantities, to give body to oil-well

drilling muds. Bauxite is mined in Georgia for making aluminum chemicals, olivine in North Carolina for epsom salt, and apatite in Virginia for baking powder.

Emeralds have not been found anywhere in North America except at Stony Point, Alexander County, N. C. One was 3 by 1¾ inches and weighed 9 ounces. Choice specimens have yielded cut stones valued at $100 a carat. Aquamarine, golden beryl, and hiddenite have also been found at this locality.

Years to Come

Thus the Southern Appalachian province produces minerals worth more than three-quarters of a billion dollars yearly. The fortuitous grouping of these minerals is noteworthy. The association of coal, iron ore, and limestone enables a steel industry. Phosphate rock and sulfur together yield fertilizer. Building stone, cement, and sand supplement each other as construction materials. Lime, salt, coal, petroleum, and water add up to plastics. The combination of clay, feldspar, glass sands, and natural gas supports a large ceramics industry. Significant is the fact that the quantities of basic minerals present are sufficiently great to assure large-scale production for many years to come, and they are supplemented by a wide variety of lesser minerals that help diversify the economy of the region.

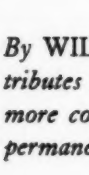
Stewardship

When people try to live by getting more out of the land and out of each other than they give back, the community sickens and may die. But it has been shown that when they take care of the land and each other, they are likely to find eventual security through this stewardship of their physical and human resources.

—Arthur Raper

Appalachian Forests— FULL AND BETTER USE

By WILLIAM A. DUERR. ***This once rich resource still contributes to welfare, but temperance and good management and more complete utilization would mean a far greater and more permanent contribution in the future.***



FEW AREAS of the United States have so much to gain from wiser management and fuller use of forests: few areas are so dependent for their livelihood on nonagricultural land resources. Forests have contributed substantially to the life of the Southern Appalachians. The region is a leading producer of hardwood timber of varied kinds; its wooded mountains and valleys are a recreation ground for many thousands of visitors each year; it is a great upland watershed, protected by trees—the roof of the eastern United States. But these forests are not contributing their full measure to the life of the people. How to get the most from forest land in the long run—to get the fullest contribution to employment and income—this is a major question.

Today may well be a turning point in the forest situation of the Southern Appalachians. The war has dipped deeply into the region's manpower, and those men and women who remain away after the war will lighten by just so much the burden to be carried by the land resources. On the other hand, those who return will bring with them altered standards, calling inevitably for a heavier use of resources. The war has dipped deeply, also, into the timber resource itself—so much so that the forest may be near low ebb at the close of the war. Then the problem of matching timber resources with the need for them will be pressing.

There have been other turning points. The period of settlement in the late eighteenth and early nineteenth centuries, when a start was made in clearing the unbroken forest, was perhaps the first. Another came when the people increased in numbers abundantly under isolation, when over large area an enduring pattern of hard-pressed, subsistence agriculture was established, with forest lands used and abandoned in rotation with corn and pasture. Another came with the big lumbering operations, the railroads, and the mines, near the turn of the present century. It was then that the hardwood industry moved southward from Pennsylvania and began to exploit the region's virgin yellowpoplar, chestnut, and oak—a process now virtually complete. For a time, forests contributed very heavily to income.

This current century has seen the rise of an industry of small sawmills, to pick over the leavings of the large operations. It has seen the arrival, and in some cases the later departure, of other wood-using plants attracted by the wide variety of the timber. Working its way down through the region, the blight has killed in 25 years practically all the chestnut, which was originally a fourth of the merchantable mountain timber. Beginnings of public forest ownership came with the establishment of eight national forests and two large national parks to protect watersheds, provide recreation, and save and rehabilitate lands unsuited to private ownership. The first World War and the coming of roads stimulated timber use and helped to dispel the frontier—the social frontier, but not the resource-management frontier.

Reviewing these events, one is struck by the fact that almost all of them represent phases of resource exploitation. Foresight, concern for public values—these have played but a minor part. Considering this, a surprisingly large reservoir of forest resources remains, a testimony to the great regenerative power of the region's forests in the absence of care.

Considering here a Southern Appalachian area of some 51½ million acres—198 counties, comprising all of West Virginia, eastern Kentucky and Tennessee, western Virginia and North Carolina, and northern Georgia—one finds more than 30 million acres of forested land. Forests occupy about 60 percent of all the land as compared with 15 percent for cropland and 22 percent for other cleared farm land.

An inventory of this Appalachian forest reveals that more than six-tenths of it is in farms and in other private holdings each smaller than 5,000 acres. Another two-tenths is held in larger blocks by lumber, land, and coal companies. The remainder, nearly two-tenths, is in public ownership, chiefly national forest. The farm woodland which has such an important place in the regional forest picture, unlike that in neighboring parts of the country, occurs mostly not in isolated blocks but rather as part of the general forest background behind and above fields and pastures. This woodland comprises 37 percent of all land in farms, and in 1939 the value of its timber products was 6 percent of the total value of farm products.

Altogether, there are some 37 billion board feet of standing sawlog timber in the Southern Appalachians. The quantity of all usable wood, cordwood as well as saw timber, is about 350 million cords. This means 1,220 board feet of sawlogs or 11½ cords of all-sized material on the average acre of forest—possibly about a fourth or a fifth of the original stocking of timber. Some of the forest has been so heavily cut over, or so often burned, or so recently regenerated that it consists of little more than brush or saplings. This is true, for example, of much forest land near the coal mines,

Ownership

If a man own land, the land owns him.

—EMERSON

where the timber has been stripped for use in mining, and of farm lands recently abandoned to trees. Nearly six-tenths of all the forest supports so little large timber that it is economically unavailable for sawlog operations. Of the remainder, most has been cut over—some acreages repeatedly, some only once to take the largest and best trees—but the residual stand is still heavy enough to be operable. On the whole, then, there is a good deal of timber, but it is widely scattered and much of it is of small size or inferior quality.

The Appalachian forest bears a remarkable variety of trees—a greater variety than is to be found in any other region of the country. Hardwoods predominate, accounting for nearly nine-tenths of the total quantity of usable timber of all sizes. Of some hundred commercially important kinds of hardwood trees found in the United States, 55 grow in the Southern Appalachians. These many kinds of timber, with their many and useful characteristics, are a substantial regional asset.

Arresting Truths

The variety of the region's timber is matched by the variety of its wood products. Lumber is the most valuable of these; $45,000,000 worth was produced in 1940, a fourth of the total value of Southern Appalachian timber products. The whole region is dotted thickly with sawmills—about 5,600 of them, mostly of small size. In 1940, they turned out 1½ billion board feet of lumber and cross-ties; their hardwood lumber, more than a billion feet, was a fourth of the Nation's output. Fuel wood is easily the most abundant timber product, accounting for nearly half of the total quantity of wood cut in a typical year. Veneer and plywood are produced at 16 plants, and veneer logs are shipped to the borders of the region for manufacture. The hewing of railroad crossties and the cutting of mine timbers occupy some 13,000 farmers and other part-time woods laborers.

Discoveries

Even more varied, however, and offering brighter promise of an expanded future for forest industry in the Southern Appalachians, are those lines of production that break away from the region's tradition of large-tree and "board" forestry. With its relative abundance of small trees, the region is well suited to these types of industry and they have already gained a prominent place in the forest economy. Eight pulp mills consume close to a million cords of hardwood and softwood each year and turn out a product worth more than 25 million dollars. By distillation or chemical conversion, wood is made into rayon, alcohol, acetate, and a host of kindred substances. Thirteen of the 16 plants in the United States that produce tanning extract from chestnut wood are located in this region. Barrel staves or headings are made in 38 widely scattered small mills employing an average of a dozen men. Small-scale, also, are the 75 mills that manufacture a wide assortment of specialized articles directly from small logs and bolts. Typical of these are the 23 shuttle-block plants; they consume annually 10,000 cords of dogwood and produce the blocks from which 2½ million shuttles are made for the great textile industry of the piedmont and

valley areas. In the domain of remanufacture, in 1939, the planing mills, paper mills, and factories producing furniture and wooden goods of various kinds added approximately $70,000,000 to the value of their raw materials, an amount equal to nearly four-tenths of the value of all timber products produced in the region.

These timber industries provided, in 1940, some 28 million man-days of employment in the woods and in the plants. Excluding the many workers who made fuel wood and other products for farm and home use, the timber industry employed 157,000 people, 10 percent of the total number of employed workers.

The majority were farmers and other rural residents for whom such labor provided a part-time source of cash income. However, 67,000 people had their major occupation in the timber industry, a number second only to agriculture and coal mining. The value of all timber products was $175,000,000, an amount probably equal to at least 9 percent of all income paid out in the region. And this is direct income from timber alone, not including returns from such other forest uses as recreation.

Questions

But now for a questioning look ahead. It is too easy to tell an optimistic story of the forest situation in the Southern Appalachians, using figures like these. The fact remains that incomes as a whole are low, and that more productive resource management is absolutely essential if incomes are to be raised. Granting that forests contribute substantially to current levels of living, may they be expected to contribute more substantially to higher levels? By what means? May timber production be sustained at the current rate, or even increased? Will there be markets for what is produced? There are some partial and tentative answers to these questions, and some lines of action that seem fairly clear.

Consider the resources of sawlog-size timber: Growth of the forest is adding to these each year at the rate of 2.1 billion board feet. This is net growth, after allowance for concurrent losses from fire, decay, insect damage, and natural tree mortality. In 1940, a fairly normal year, the total cut of sawlog-size timber was 1.9 billion board feet. In 1943 it was about 2.1 billion. Apparently saw-timber resources are scarcely holding their own.

And to take a closer look at this situation: Within the region in West Virginia and North Carolina there was a deficit in growth as compared with the cut, even in 1940. In all six States there was a deficit in the most favored kinds of trees—such as the pines, yellowpoplar, and white oak—and in larger trees of nearly all kinds. What is happening to saw-timber resources, then, is a gradual over-all depletion and a marked change in composition, the kinds and sizes of trees currently favored being on the decline whereas the less favored are on the increase.

Obviously, there is belt-tightening ahead. For the near future curtailed use of saw timber, at least of the choice kinds, is inevitable. Appalachian forest land and growing stock *can* produce good saw timber abundantly. But for them to do so, the growing stock must be allowed to develop. And more than that: it must be given active, intelligent management to reverse the present

pronounced trend toward low-quality trees.

Measures Ahead

Two forest-management measures, particularly, are needed now. One is better protection of forests from fire. Fires burn over 3 percent of the whole forest area each year, killing many trees, but doing their worst damage by opening the way for decay, insect attack, and soil depletion. Within the region are about 65 counties not yet covered by the public fire-protection system, and in many counties the system should be intensified. The other measure is publicly enforced provision for cutting timber in ways that will better assure rebuilding the forest than do most present methods. Without fire protection and reasonable cutting practices, there is little use to hope for future benefits from forestry.

To supplement these measures, further public acquisition of forest land appears to be necessary. Part of this acquisition will be automatic if tax-reversion procedures are clarified. Other lands where timber values are exceptionally slow in maturing or where watershed or recreational values are paramount will need to be purchased.

These are measures for building a more productive forest and allowing eventually fuller use of sawtimber resources. But what of the intervening period? Perhaps part of the answer lies with the timber resources of less than sawlog size or quality.

Consider the resources of usable timber as a whole—cordwood as well as sawlogs: These are growing annually at the rate of about 10.3 million cords, while they are being cut at the rate of 7.4 million cords. A surplus appears in each of the six States, ranging as high as 140 percent of the cut in Georgia. This surplus is not all of good quality; but it represents non-sawlog material sufficient to allow necessary rebuilding of the growing stock of cordwood and to permit expansion of the cut, as well. If to this surplus is added the quantity of usable sawmill waste and of unused tops, limbs, and sound cull trees, the total reaches some 6 million cords a year—more than the entire current consumption of non-sawlog timber.

Foreshadowings

The existence of these supplies in a region as well located and as well endowed with labor resources as the Southern Appalachians should foreshadow post-war industrial development. The stirrings of such a movement are already felt. Here a corporation inquires into the availability of small timber for distillation and chemical conversion. There a State government studies the possibility of using sawmill waste to make alcohol and other products. Elsewhere flooring is being made on an experimental basis from undersize, low-quality logs; a small company makes plans to produce broom handles; a cooperative society investigates the opportunities for manufacturing wooden toys; a public agency tries to learn how semiprocessed wood products may be carried to a higher stage of manufacture within the region. But these are, as yet, only stirrings. More research is needed in ways of utilizing profitably the Appalachian reservoir of low-grade hardwood.

Problems

The two major forest problems of the Southern Appalachians, then, are to build up the resources and to utilize them more fully. Closely linked to these are two other problems that may stand as a threat to future expansion of forest industry.

One of these problems is in marketing. Timber resources are spread so thin that costly effort is needed to concentrate products and in some areas timber is spread so very thin that only local use is possible. Of the thousands of small timber owners, middlemen, and processors, few have real knowledge of timber products and markets. These circumstances make for unsatisfactory and sporadic contacts throughout the marketing chain. Part of the solution may eventually come through rebuilding timber supplies. Part may come through establishing well-managed, diversified concentration yards, possibly under cooperative auspices.

The other problem is a central problem common to the management of all Appalachian resources—underemployment of workers. In forestry, underemployment creates a deadlock: The existence of a large class of persons with opportunity to work only part time and for a low return tends to perpetutate a depleted and picked-over forest, a socially costly distribution system, and an industry that is insecure in being kept alive only through the subsidy of underpaid labor. Forestry alone cannot solve the whole underemployment problem. But forest resources can help to solve it—by fuller use, through wiser management.

Power Resources ARE Hard At Work

By KENNETH R. KENNEDY. *The revolutionary work of TVA in developing power resources has been accelerated by the demands of war.*

HERE is a region that is rich in the power resources which underlie progress in an era of technology and machines. The Southern Appalachians are rich in rainfall which provides ample stream-flows, in deep gorges which make admirable sites for great storage reservoirs, and in the slope of mountain streams which provide high heads for generation of electric power. It is endowed with rich reserves of high-grade bituminous coal for the production of electric energy and for a host of industrial uses. And it has a further resource of energy—not commonly thought of as such but

nevertheless of immense possibilities—in the soil of its fields and forests and in a climate favorable to growth.

Use of these waterpower resources began almost as soon as the first settlers established themselves. On the small watercourses they built their simple grist mills, and in certain parts "waterground meal" is still looked upon as superior. Three-quarters of a mile below Norris Dam, on the Clinch River, providing a striking contrast to modern humming turbines is a small, log mill with giant overshot wheel which in season grinds cornmeal for tourists. Built in the last decade of the eighteenth century, the mill was still operating when engineers explored the mountain valleys now covered by the 72 winding miles of Norris reservoir.

Development of the region brought about the progressive utilization of the power resources to keep pace with increase in population, growth of towns, and advances in industrial technology, so that it is now dotted with hydroelectric and steam-electric generating stations. Though many of the mountain areas where the best hydro sites abound are sparsely settled, they are close enough to large population centers and more settled areas to be well within transmission distance. Advances in industrial processes have helped bring about power developments. Aluminum processing by electrolysis, for example, made feasible the investment of millions of dollars by the chief aluminum company in hydro plants and reservoirs in the Great Smoky Mountains of Tennessee and North Carolina.

Many hydro sites had been developed in the past, and there have been such large recent developments as the multiple-purpose dams of the Tennessee Valley Authority, and the Nantahala and Glenville Dams on the Nantahala and Tuckasegee Rivers in North Carolina and the Claytor Dam on the New River in Virginia, developed by privately owned companies. Nevertheless, many possibilities for waterpower development remain on the Cumberland River, the New River, and other streams.

Coal and waterpower resources have helped to assure efficient and economical power developments, for despite the debate that on occasion rages furiously over the relative merits of the two types of generation, the commonly accepted fact is that the best results are usually obtained by a combination of the two. The region has seen both steam and hydro plants rise near its mines and on its streams and has benefited by the effective teamwork they provide.

That part of the Appalachian region which lies in the Tennessee River basin, stretching southwestward from western Virginia to Muscle Shoals in northern Alabama, has seen perhaps the fastest and most comprehensive power development during the last 10 years, and particularly since 1940, when power demands for the production of war materials came in earnest. Here the TVA has been charged with the development of water resources as a part of a broad program of regional development. In this program, power development does not stand alone but is an integral part of control of the river to reduce or eliminate the destructive floods and to create a modern inland waterway, of the industrial and agricultural development, and of activities

for the development, conservation, and wise use of basic resources.

Since its establishment by Congress in 1933, the TVA has completed 14 dams, and all but 1 of them lie within the boundaries of the Southern Appalachian region, as do 5 of the 6 dams acquired through purchase or transfer and 4 of its 5 steam generating stations. Of the 1,834,000 kilowatts of installed generating capacity on its system today, more than 1,560,000 kilowatts are in this region. In comparison, only about 540,000 kilowatts of the capacity now included in the system were in existence in 1933, of which about 400,000 kilowatts were located in the Southern Appalachians.

Much of the expansion has taken place during the last 4 years under the spur of war, with the capacity of the system nearly doubled since June of 1940 and with power being produced at the rate of 10 billion kilowatt-hours a year. Three-fourths of the output goes to war purposes.

Alerted

This tremendous contribution to power for war, enabling the production of aluminum, airplanes, guns, shells, ships' boilers, army clothing, explosives, and many other items, stems directly from the orderly plans for multiple development of the river begun in 1933. In that year, TVA began construction of a series of seven dams in the Tennessee River which, with two existing dams, has transformed most of its 652-mile course into a stairway of long lakes.

By the middle of 1940, six dams—Pickwick Landing, Wheeler, Guntersville, and Chickamauga on the mainstream and Norris and Hiwassee on the tributaries—had been completed, and other mainstream dams were under construction. Thus TVA was in a favorable position to provide new supplies of power with great rapidity. It had the seasoned engineering design and construction organization to inaugurate new projects immediately and to carry them through on time. It had the fundamental information concerning potential power sites. Moreover, the construction of new storage reservoirs at the headwaters not only provided energy at the new power plants but through the release of stored water during periods of low stream-flow would enhance the power-production capacity at downstream plants.

War Expansion

To meet war power demands, Congress since July 1940 has authorized the construction of nine dams and one of the largest steam-electric plants in the South—all in the Southern Appalachians. Six of the dams—Cherokee, Apalachia, Ocoee No. 3, Chatuge, Nottely, Douglas—are now in operation. Fontana, which will be the highest dam east of the Rockies, is progressing rapidly. The Watauga and South Holston Dams, relatively less important for power production, were begun but were later held in abeyance on orders of the War Production Board. The new Watts Bar steam plant is in operation. On the mainstream, Watts Bar and Fort Loudoun Dams have been completed under wartime schedules.

In line with the trend all over the country, power systems have become more closely interconnected in order to make maximum use of gen-

erating facilities. Bearing out the adage of the ill wind, this trend was speeded up during 1941 when, in addition to unprecedented demands for power, the Southeast was struck by a severe drought. To keep vital war production going full blast, new interconnections were r u s h e d through and new operating agreements were worked out. Thus TVA and other power systems, some of them far removed, cooperated to funnel power far in excess of normal demands into war industries.

Salvage

Here the great hydro reservoirs provided the means for salvaging large quantities of off-peak steam power which otherwise would have been lost to war production. At night and over weekends, when power demands fall off, many steam plants ordinarily are idle or produce far below capacity. But TVA was able to take the off-peak steam power and use it to meet its own power requirements, meanwhile reducing its hydro generation and storing in its reservoirs the water that otherwise would have been used. During the week, when power demands rose again, the stored power was either restored to the steam-generating systems to help meet their loads or was transmitted to war plants. In this way, these huge reservoirs in the fiscal year 1942 saved about half a billion kilowatt-hours of energy which otherwise would have been lost.

Progression

Expansion of power resources for war is helping to lay the foundation for peacetime development of the region, for ample supplies of power are essential to almost every phase of economic and productive activity. The TVA regional development program of which electric power is a part stems back historically for more than a century, when the Federal Government made its first attempt to improve the Tennessee River at Muscle Shoals for navigation. Power possibilities were brought to the fore around the turn of the century, when President Theodore Roosevelt vetoed a proposal for private power development on the ground that the Federal Government should reap the benefits in order to help finance other river improvements. The first World War resulted in the construction of Government-owned nitrate plants and Wilson Dam. Later, the growing menace of floods called attention to the need for reservoirs to impound dangerously high flows at the headwaters to protect settled and industrialized areas below.

Broad Concept

In the TVA Act, Congress coordinated these three objectives of river control into a broad concept of regional development which envisaged the orderly development, conservation, and use of all resources—water, soil, forests, and minerals. Power was viewed as the "paying partner" in engineering development of the river, and in the past fiscal year brought TVA gross revenues of $31,674,000 and provided nearly $13,150,000 in net income after all power expenses. Low rates charged by the 128 municipal and cooperative electric systems which distribute TVA power have vastly increased the use of power by ultimate con-

sumers. Average residential consumption exceeds 1,600 kilowatt-hours per customer per year, more than 50 percent above the national average. Increasing amounts of power helped to swell industrial production of the TVA region.

With the lengthening of the commercial navigation channel, traffic on the Tennessee has increased rapidly, more than doubling in 4 years. Large quantities of military supplies have been carried on the Tennessee River, including as many as 600 jeeps, trucks, ambulances, and weapon carriers in a single tow. Petroleum, grain, coal, and iron move on the river in increasing quantities. To speed the wartime use of the river, TVA has constructed and is operating new navigation terminals at four principal river ports on the Tennessee, all within the Appalachian region. Flood damage in the Tennessee basin has been markedly reduced.

Interrelation

Power in the TVA program is more than a commercial venture; it is viewed as a tool. Research is carried on to increase its benefits to industry and agriculture, as in research on the quick-freezing of fruits, vegetables, and meats and in the electric firing of pottery kilns. Rural electrification has been pushed—there are now, in all, 80,000 farms using TVA power, few of which had service in 1933—and extensive research has been done on application of electricity to farm tasks, such as feed grinding, irrigation of truck farms, and chicken-raising. All of this research may have direct bearing on the development of Appalachian resources.

TVA power, used in the electric phosphate furnaces at Muscle Shoals, plays a vital role in agricultural development in the Appalachians and elsewhere. In the Muscle Shoals plants, new and improved forms of concentrated phosphatic fertilizers have been developed by electric furnace methods.

Renewable Source

Building up the soil creates a renewable source of energy. In the Southeast, with ample rainfall and long growing seasons, the opportunities for use of this resource are great if only the soil is properly protected and enriched with essential minerals.

Land already is helping to provide energy for machines as well as for the men who run them. In European and South American countries, charcoal provides gas to run cars. In parts of Europe, even before the war, gasoline was eked out with alcohol. The greater the industrialization sought in the Appalachians, the greater will be the demands on the soil for both energy and raw materials. Automobiles today are running on tires from the wheat fields, and automobile bodies of soybeans are said to be but a step away.

Well-being

The Southern Appalachian region, in common with the rest of the country, envisions a future of well-being based on technology and industry. To meet the demands of this development, it is essential that the inexhaustible and renewable sources of energy—water and soil—be conserved and wisely used.

Recreation—

WHEN WAR IS DONE

By ROBERT M. HOWES. *Increasing thousands have found refreshment and stimulation among these peaks and valleys; the war's end will probably bring an expansion of the facilities for recreation and the requisite time to enjoy them.*

THE Southern Appalachian region is a land rich in the natural and cultural resources which make up a recreation area. Located at the crossroads of tourist travel across the eastern half of the United States, it offers a variety of recreation opportunities within easy reach of two-thirds of the Nation's population. It is a land of ancient mountains and new lakes, of running streams and sparkling waterfalls, of wooded ridges and open valleys. Here lived a race of prehistoric people and, later, the Creek and Cherokee Indians, whose warpaths and trading routes threaded the region as do the tourist highways of today. Scotch-Irish settlers followed these routes or blazed new ones across precipitous mountain walls. They brought a hardy culture and an inherent love of liberty that is alive today in current thought as well as in ballad and legend. In the past two centuries battles that shaped the course of our country's history were fought here—Fort Loudoun, Kings Mountain, Chickamauga, and Chattanooga. In the present century, men and materials of war are pouring from the region to play their part in shaping our country's future.

Areas so richly endowed offer exceptional opportunities for conserving, developing, and utilizing their recreation resources. With a few notable exceptions, however, little of this had been done in the Southern Appalachians until recent years. Then the activities of several Federal agencies, together with an awakened local interest in the possibilities of recreation development, set in motion an active recreation program which was interrupted only by the fall of Japanese bombs on Pearl Harbor. The war period has served as a time for reevaluating objectives and for planning a resumption of activity with the advent of peace.

The Blue Ridge Mountain Province which forms the southeast flank of the region is the loftiest, most concentrated mountain mass east of the Mississippi River. The Appalachian Range, extending southwest from Maine to Georgia, culminates within this province in rugged peaks, separated by narrow coves and valleys. High annual rainfall assures ample flow in stream courses, interrupted by frequent

waterfalls and cascades. Abundant moisture and a wide range of temperatures, varying inversely with the altitude, promote rich and varied plant growth. Trees, shrubs, wild flowers and ferns range from southern river-bottom types to the northwoods species of Canada and Hudson Bay. Warm summer days and cool nights prevail. The Great Smoky Mountains National Park and surrounding national forests offer many and varied scenic and recreational attractions to the year-round visitor.

The Cumberland Plateau, extending from Kentucky through Tennessee and into northern Georgia and Alabama, forming the western portion of the region, is edged by a nearly continuous palisade of vertical cliffs rising above wooded slopes which drop abruptly to the lowlands. Views from these cliffs, varying from restricted glimpses across interior gorges to distant panorama across adjacent lowlands, contribute in large measure to the plateau's scenic interest. Waterfalls and unusual rock formations abound. State park and forest areas distributed rather widely over the plateau offer vacation and day accommodations to the visitors. Newest public recreation area is the Cumberland Gap National Historical Park for which land is now being acquired.

Between the Blue Ridge Province and the Cumberland Plateau, the Valley of East Tennessee, the southern extremity of the Great Appalachian Valley, stretches its 40-mile breadth from Virginia to Georgia. Its undulating agricultural lands are creased by a series of parallel woodland ridges breaking the valley floor into minor valleys. Although climatically and scenically not so well suited to recreation as the flanking mountains and plateaus, this valley holds considerable interest because of its developed recreational facilities, exemplified by the system of lakes formed by the reservoirs of the Tennessee Valley Authority.

Restorative

. . . and the leaves of the tree were for the healing of the nations.

—Revelations 22: 14

Before 1933, development of the Southern Appalachians as a tourist center had been chiefly confined to two areas. About 1820 the first of a number of resort hotels and communities was established in the eastern fringe of the Blue Ridge Mountains to serve wealthy visitors seeking relief from the summer heat along the Atlantic coast. Many of these developments were speculative; they were short-lived or gradually declined. A few have survived. The Asheville area provides the most striking example of continuous promotion and popularity of resort development.

The second area of major tourist attraction, the Great Smoky Mountains National Park, was created by the Congress in 1926, funds having been donated from public and private sources for the purchase of the land. Hundreds of thousands of visitors from all parts of the country annually enjoyed the scenic beauties of the park until the war restricted automobile travel.

Inauguration of the TVA program in 1933 gave a great impetus to the development and use of the recreational resource of the Southern Appalachians. The river-improvement program has resulted in an extensive public domain of lake and shore, supplementing recreation attractions. Impounded water—even in reservoirs built primarily for navigation, flood control, and power—has a special significance in this region. The glacial ponds and lakes occurring in more northern latitudes are lacking. The gradual transformation of unrestrained silt-laden streams into clear blue lakes with unbroken expanses of open water creates tremendous recreation potentialities in country that is comparatively devoid of natural bodies of water.

Added Attractions

The system of TVA lakes in these Appalachians includes five lakes on the Tennessee River itself—Guntersville, Hales Bar, Chickamauga, Watts Bar, and Fort Loudoun; Norris, Cherokee, Douglas, Fontana, and Hiwassee lakes on its principal tributaries; and seven reservoirs of lesser recreational significance on other tributaries. Three additional projects are authorized. Upon completion, these lakes and reservoirs will impound a total of some 300,000 acres of water surrounded by 5,000 miles of shore line, most of it publicly owned.

TVA activities have attracted many visitors. Norris Dam, not far from Knoxville, and the Newfound Gap highway through the Great Smoky Mountains National Park were completed at about the same time, providing a double objective for ever-increasing tourists. Improvement of other highways, and the recreational development undertaken by the Civilian Conservation Corps in the National and State parks and forests also contributed to the new interest.

Multitudes

Boating, hitherto relatively unimportant, became a pastime for many. Garages became marine-engine repair shops, carpenters became boat builders, and village stores stocked fishing tackle and bathing suits to meet a growing popular demand. The handicrafts of the region found a widening market. The lakes, plus the new recreation activity awakened the people to the social and economic importance of their recreation resources.

Public agencies responded to the quickening popular interest. The National Park Service, U. S. Fish and Wildlife Service, U. S. Forest Service, State conservation departments and planning commissions, to mention only a few, engaged in joint enterprises with local groups to conserve and develop the region's diverse attractions. Recreation became a heavily patronized and lucrative industry which, in Tennessee alone, brought an income of $104,000,000 in 1941.

War Changes

Then came Pearl Harbor and the war, with its proper and insistent demands for the diversion of labor, materials, and facilities to provide the means to win the peace. What ultimate effects may be ex-

pected from this temporary reorientation of thought and activity?

Obviously, basic natural resources—scenery, location, and climate—can scarcely be materially altered. The progress made by the various public agencies in acquiring and developing recreation areas has been halted, but gains are being consolidated and will not be lost. Minimum maintenance programs insure the preservation of natural values and protection of buildings and equipment against loss by fire, depreciation, or vandalism. Private agencies and individuals are less well equipped to maintain the services and facilities they have developed. The mortality in this group will be high, particularly in the fields of roadside services, but highest losses will be experienced in the marginal operations.

On the Books

Among the greatest opportunities for the expansion of new recreation facilities in the region are those around the lakes and reservoirs. By purchasing riparian lands surrounding or adjacent to its reservoirs, the TVA has insured their availability for recreation development in response to public needs and requirements. At the close of the war the resources resulting from this system will be available for development according to plans which have been outlined in cooperation with other Federal, and State and local agencies.

The prospects for establishing in the Southern Appalachians a large-scale public-works program in the field of recreational development, and based upon a real public need, are excellent. When peace is restored, private enterprise will find among the people there an equally enlightened realization of the needs and the opportunities for private investment. Much of the general and some specific planning has already been completed.

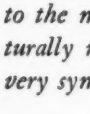
Title

Title to a certain piece of earth is one of our more or less useful human fictions. Leave in enough time, and we are all natives and all interlopers. The only true title to things is use, and good use in the long run is good title, while bad use is bad title. We will soon lose what we cannot use well, no matter how sure we are that we own it.

—Ferner Nuhn, in *The Wind Blew From the East*, Harper & Brothers.

Handicrafts AND *A WAY OF LIFE*

By ALLEN EATON. *We cannot leave the Southern Appalachians without inquiry about the future of the handicrafts, for to the mountain people they are economically, socially, and culturally noteworthy and to others the country over they are the very symbols of the region.*



TO ONE WHO has followed the development of handicrafts in the Southern Highlands from the revival 40 to 50 years ago to the present time, the changes that have taken place in the character and variety of the products are significant. It is not a static industry though it is practiced in remote and sometimes primitive surroundings. If he tries to visualize the future he feels both hope and dread—hope because of growing cooperation to improve quality and to extend markets, and dread that in the process of improvement and adaptation to customers' requirements some of the best uses and values of these handicrafts may be lost.

For handicrafts, together with small and often inadequate acreages, form the base upon which many mountain families and communities build their present and their future. This is true in both an economic and a social sense.

It is not an exaggeration to say that at Brasstown, N. C., under the encouragement of the John C. Campbell Folk School, when the people of that rural community found they could whittle what others would buy, they determined to whittle their way out of many of their difficulties. Members of 10 to 20 families have been whittling industriously for several years, adding from one to several hundred dollars to their annual cash incomes. In this process they develop frequent contacts with each other and occasionally with the world outside. The wood at their dooryards is whittled into forms that are useful, beautiful, or amusing, and finds its way into homes all over the country.

Success has been experienced through other handicrafts in many small places in these mountains. Often even the very old are highly skilled. Pottery, weaving, dying with color from native plants, metal work, musical instruments, furniture, toys, baskets—the products are legion. Color, form, quality, design, naïvety, and usefulness all play their part in making this work known far and wide. The objects vary with the materials at

hand, the inherited skills, the aptitudes, and the available guidance and outlets.

The larger viewpoint visualizes these handicrafts not only as a source of income but as a source of satisfaction to those who make and to those who buy them, and as a means for perpetuating a culture and a way of life. Modernized methods, models, and designs will continue to make the people more conscious of the importance of the handicrafts as a real economic and cultural resource, around which long-time plans can be made.

The Southern Highland Handicraft Guild, organized some 15 years ago, gives examples of the normal progress that may be on the way. Besides including many individual workers, it comprises the leading handicraft centers of the region—Allanstand Cottage Industries, the John C. Campbell Folk School, the Penland Weavers and Potters, the Spinning Wheel, all of North Carolina; Fireside Industries, Hill Crafters Guild, Pine Mountain Settlement, and Hindman Settlement school, of Kentucky; Shuttle Crafters, Pleasant Hill Academy, and Pi Beta Phi Settlement School, of Tennessee, and many other handicraft centers in these and the other Appalachian Mountain States.

This guild has staged extensive exhibits at several strategic points and times, occasionally under sponsorship of recognized art institutions. These displays have enlisted the permanent interests of many people and organizations in many parts of the country. At its annual meetings the Guild is concerned with such problems as quality, designs, trends, and outlets. Several large central shops have been opened for the sale of southern handicrafts—notably those at Asheville, N. C., at Norris Dam in Tennessee, and at Rockefeller Center in New York City. Valuable aid has also come to the movement through the Office of Indian Affairs, the T. V. A., the Agricultural Extension Service, and other Federal agencies.

Volunteers

Thousands of persons trained in handicrafts have become a reservoir of skilled workers from which the American Red Cross, the USO, and similar agencies are drawing volunteers.

—M. L. Wilson

Influences

Several influences tend to perpetuate the fireside industries. Most of the mountain families own their homes and are far from evening distractions. They need these added earnings. For generations they have been accustomed to work with their hands and have often acquired real skill and taste. Many of the materials they use—wood, clay, plants for vegetable dyes, wool—are at hand. Guidance and outside interest in their work grow with the years for there is a definite appreciation among both young and old in the outside world for the rich colorings, the beauty of design, and the quaintness and

originality of these home-made, hand-made products.

Opposing influences are obvious. Commercialism in most phases operates against the handicrafts. Many people value the mechanical uniformity of commercial products above individuality and they do not realize the necessity for the higher price of the object that has often been painstakingly worked out by hand. The tendency toward speed, including the demand of the customers for prompt delivery, militates against some of the best handicrafts.

War Impacts

Many skilled craftsmen are serving with the armed forces and others have gone into war industries thus diminishing the supply of handicrafts. War also has cut off the imported work that appeals to the same people who appreciate our hand-made objects. The loss of imports, the increased earnings of our people generally and other influences have meant increased sales of handicrafts at the larger city centers as in Washington and New York City. But the elimination of pleasure driving has reduced roadside and local sales. Just how well these influences may have balanced each other cannot be closely estimated but the indications are that the movement has not suffered unduly in its essential and enduring elements because of the war.

Looking Ahead

More normal times will bring the motorists and vacationists back to mountain roads and to the National Parks and will revitalize those outlets. A purchasing power stabilized somewhere near the present is planned for in influential quarters. The devastation of foreign lands may mean that peasant products will long be absent from our shops. On the other hand the rehabilitation of many of our returning veterans will include learning to make attractive and salable handicrafts. Our Southern Highlanders and their friends will do their part toward welcoming these therapeutic measures. And among those who will be thus working their way back to health will be men and women from the Southern Highlands who have practiced these arts before and will not be newcomers among those who would produce for sale. Boys and men in the services, now on every eastern continent, have written home of their longing to get back to their handicrafts again.

Just what the future may be for the handicrafts of the Southern Highlands cannot be spelled out exactly but, judged by the long and varied history of the movement and by our deductions from present trends, it seems safe to believe that they will continue to play a real and valued part in the economy and culture of the mountain people.

The land was ours before we were the land's. —ROBERT FROST

Books

Food "Crisis". By *ROY F. HENDRICKSON*. Doubleday, Doran and Company, Inc. Garden City, N. Y. 274 pages.

WHEN "food went to war," agricultural surpluses which had been called a scourge of the thirties disappeared. Becoming a strategic factor, food entered a period of so-called crisis resulting from scarcities and Roy Hendrickson was drafted to perform the difficult mission of "dividing our food supply to do its maximum job." Since his appointment as director of the United States Food Distribution Administration, his agency has become the greatest buyer of food in the world. A man who is responsible for food purchases averaging eight million dollars a day speaks with authority on a subject which is of as general civilian interest as the ubiquitous ration book, of as great international concern as the feeding of the United Nations now and the hunger-stricken world presently, and the needs of the military.

Mr. Hendrickson's factual analysis, placed in the setting of the development of the problem, is applied with social vision and technical competence, and is, in the opinion of your reviewer, one of the historic case-study documents in the necessity, methods, and morals of social control for a common welfare on a global scale.

The science of nutrition, effectively applied to the military requirements and refined by poll methods to supply menus which men like best, has strengthened morale as well as physical stamina and resulted in important economies. With the needs of nutrition as the yardstick, the Food Distribution Administration determined the civilian share in advance and then proceeded to distribute the food by rationing, thus tending to equalize consumption without reference to income. Such a process of distribution, of necessity, forces the reorganization of food habits. This fact is nowhere more vividly emphasized than by observing that, prior to the war, people with annual incomes of $1,000 to $1,500 per year consumed twice as much beef as people with incomes of $500 or less, and that people with incomes of $5,000 or more consumed over 40 percent more meat than the $1,000 to $1,500 group.

Lend-Lease programs will make about 10 percent of our agricultural production available to our allies in 1943; Mr. Hendrickson shows that our food contribution represents 300,000 railway carloads. In dealing with the cost of lend-lease, the author asks, "How do we assess the cost of human lives against food?"

POINTING OUT the tragedy of starvation of occupied countries, the author analyzes the experience of liberated countries to find the pattern for feeding the countries to be released from Axis domination.

Except for a strong and resolute program of price ceilings, subsidies, savings, and taxation, he says that the continuous rising trend in the cost of living may bring "consequences in human misery, second only to the human cost of war." The story of how agriculture has met production schedules is related in a brilliant chapter entitled "Food Begins on the Farm." Contrasting the British and American ways of admin-

istrating the food front, the author assures us that "we shall have enough to eat" (about 4 pounds each day).

Looking to the future, Mr. Hendrickson emphasizes Secretary Wickard's thesis that Food Will Win the War and Write the Peace. Stating an "objective for peace" to be a "supply and distribution of food to assure a fully adequate diet, nutritionally," he observes that "a nation that can build a war machine of terrible strength should be able to forge a peace economy that will be equally strong. The war that takes things away from us at the very time we can afford to buy them should not be followed by a peace in which we have the ability to produce what we want without the ability to distribute that abundance. This need not be, unless we let it."

Food "Crisis" is the manifesto of a courageous agricultural statesman just as much as it is a superb case study in the tactics and strategy of effective administration of one of the toughest jobs of the war epoch. What appeals to your reviewer quite as much as the technical competence is the deep social sensitivity with which the mission is being executed, the conception of brotherly sharing which is a sequel to the Biblical story of Joseph, and the faith that intelligent government can and must play, and is actually playing, a redeeming role in our common life in "one" world.

--Paul F. Douglass

FOOD. By *FRANK A. PEARSON* and *DON PAARLBERG*. Alfred A. Knopf. New York. 239 pages.

FOOD FOR PEOPLE. By *MARGARET G. REID*. John Wiley & Sons, Inc. New York. 653 pages.

WARTIME FOOD MANAGEMENT: AN ANALYSIS WITH RECOMMENDATIONS. By *JOSEPH S. DAVIS*. (The Economic Sentinel of the Los Angeles Chamber of Commerce, Vol 1, No. 1). 46 pages; and FOOD AS AN IMPLEMENT OF WAR: THE RESPONSIBILITIES OF FARMERS. By *JOSEPH S. DAVIS*. Food Research Institute, Stanford University, War-Peace Pamphlet No. 3. 20 pages.

FOOD ENOUGH. By *JOHN D. BLACK*. The Jacques Cattell Press. Lancaster, Pennsylvania. 269 pages; and WORLD NEEDS FOR U. S. FOOD AND FIBER. By *JOHN D. BLACK*. National Planning Association. Washington, D. C. Planning Pamphlets 25 and 26. 71 pages.

WE ARE once again discovering food. Food crises, food conferences, food statistics, food shortages, and even some food surpluses have all followed one another or been so intermingled as to give rise to a great deal of argument. As a result, we are now beginning to see a stream of analyses which are designed to simplify the food situation, or at least serve as a basis for a better understanding of where we are and what lies ahead.

According to Messrs. Pearson and Paarlberg, we have allowed ourselves to be led into a senseless "food muddle" at a time and in a situation where neither controls nor administrators are actually needed. Shortages can be offset by increasing the use of cereals for food, and an equally

simple solution is offered for the "tangle" of roll-backs, subsidies, ceilings, ticket rationing, and black markets—freely fluctuating prices with every man for himself and the devil take the hindmost.

Miss Reid and Messrs. Davis and Black are not so sure about the ease with which our difficulties can be solved, although each of them is especially well qualified to discuss food. All three are, or were at the time their material was published, working outside the Federal Government, all were working for institutions whose standing is well recognized, and the interest and acquaintance of all three with the food situation are exceptional.

APPARENTLY, all three authors would agree with the statement in the opening section of Miss Reid's book where she distinguishes between economics as a science devoted to the description of facts and relationships which aims only at enlightenment, and as a normative science concerned with the general welfare and improving the lot of mankind. All three are sympathetic to farm people and their difficulties; but all three are also convinced that food production should be increased, that food costs should be controlled, and that available supplies should be equitably distributed.

AFTER her opening section, Dr. Reid endeavors to summarize recent research and statistics relating to food for most of 600-odd pages, returning to the welfare argument in the final section where she recognizes that "food for people has a central place in freedom from want. There is a growing spirit of community, national, and international responsibility that all persons should be well fed."

Davis and Black are more directly concerned with the current food program and the prospect ahead. Dr. Davis decries intentional exaggeration, calamity howling, and overstatement, and approaches the situation with a conviction that "our food problems are genuine, troublesome and serious enough, and no end of them is in sight. But there has been no 'food crisis' worthy of the phrase, and none will need to arise." As a result, Dr. Davis achieves a sane and rather careful discussion of the food situation in *Wartime Food Management*, and goes on to stress that farmers must use their collective strength not only in their own interest but also in the national interest in *Food as an Implement of War*.

ACCORDING to Dr. Black, food producers and distributors of the United States now have almost the strangest assignment that could be imagined, so strange that their minds have not yet been able fully to realize it. This assignment is "to produce and distribute every possible pound of human food" and the central theme relating to the situation is that there is no physical reason why enough food cannot be produced, processed, and moved into consumption to meet all the reasonable needs with which we are faced.

Dr. Black summarizes food needs for our Armed Forces and war workers, for civilians, and for our allies and foreign relief (these needs are discussed at length in *World Needs for U. S. Food and Fiber*). Factors affecting production—manpower, machines, and materials—are next considered, and the background is thus set for an analysis of the foods we could produce, of desirable shifts in production and consumption, of food rationing and price control, of distribution difficulties, and the concluding sections relating to "food international" as well as our own domestic situation following World War II. *Food Enough* was written with the average reader in mind and it is certainly as readable, as accurate, and as able an analysis of the over-all food situation as has yet appeared.

—O. V. Wells

THE TENNESSEE VALLEY AUTHORITY. A STUDY IN PUBLIC ADMINISTRATION. By *CHARLES HERMAN PRITCHETT*. The University of North Carolina Press. Chapel Hill. 333 pages.

THE AUTHOR readily admits to a pro-TVA bias, but this reviewer fails to find that it has prevented an interesting and factual presentation of the background, birth, growing pains, and present status—with a peek at future possibilities—of an American institution that is developing within the lifetime of those of us who are today working in agriculture.

The 25-page introduction carries the reader from Muscle Shoals to TVA—from World War I to 1933. In Part One, the program of the Authority is presented: Water control, power finding a market, power operating problems, regional planning and development. At this point the reader has been exposed to a quick review of the legislative and legal obstacles taken by this gigantic economic and social Government experiment in providing power, flood and erosion control, water transportation, recreation facilities, and a means of providing work and better living conditions for local families.

Actually, Part One serves as a preface to the main subject but, as the author contends, "To understand TVA administration it is necessary to understand the TVA program." If the book ended at this point, we would have a miniature of the growth of an inland empire. TVA has completed or has under way 23 dams, and controls some 14 others throughout the Basin. Erection of power plants, fertilizer manufacturing, a network of transmission lines; satisfactory cooperative arrangements with municipalities, farmers, and others; extensive soil conservation and improved forestry practices—these are a few of the possibilities that have now been proved as feasible under a planned economy, backed by the Government.

FUTURE application of the lessons thus learned to several similar areas within the United States is entirely possible.

Much of the section on Administration is concerned with the rising difficulties incident to three-man directorship, the preliminary attempts to combine policy-formulation and administrative responsibility in the hands of the board, the impossible situations that both author and reviewer believe are bound to develop when more than one pilot holds the wheel. At the top level, misadministration is emphasized, culminating in the discharge of the first chairman. So much emphasis is given to this phase of TVA history that one might wonder at the success this whole venture has attained. The reader is led through evolving circumstances wherein administration is finally centered in a general manager, while policy determinations are made by the board of directors, much as in other corporations.

A considerable degree of corporate freedom has been exercised by the Authority since its inception. In the matter of financing it has been notably unhampered in its relationship to Congress and the Bureau of the Budget. Finances are obtained from appropriations, revenues from the sale of power, etc., and income from the sale of bonds. Annual accounting is rendered to Congress and the President, and annual appropriations were stabilized at around $40,000,000, until the national emergency speeded up the planned construction program. Wrangling over GAO procedures, covering 7 or 8 years, was dissolved by a compromise wherein some autonomy was maintained by TVA, with governmental audit by the Comptroller General.

Freedom from the Federal civil service system is emphasized as a factor that has made the administration of personnel out-

standing in its success. A merit-service system, however, in both the selection and the promotion of employees has been in force since the beginning. A central personnel-management staff has been relied upon throughout—a staff that emphasizes its service rather than its control functions.

Classification sheets for jobs in various fields, developed with the Federal system as a guide, make procedures comparable. Rates of pay, system of promotions, and efficiency-rating techniques are likewise similar, but a student of administration will find the unique differences very interesting. An essential difference is the right of supervisors to fire employees for just cause, presented in writing.

As the author well says, it is good to have this example, for the world into which we are moving will have increasing tasks for such agencies to perform.

—*Ralph H. Rogers*

ROOTS IN THE EARTH. THE SMALL FARMER LOOKS AHEAD. By *P. ALSTON WARING* and *WALTER MAGNES TELLER*. Harper & Brothers, Publishers. New York and London. 202 pages.

HERE IS A DEFENSE of the small family farm and of public policies which the authors believe can strengthen and preserve it as an economic and social institution.

The family farm is not sharply defined, but it is implied to be something approximating a 60- to 100-acre Bucks County, Pa., farm, like those operated by the authors. These authors avoid the extreme doctrines of self-sufficient subsistence practices typical of many small-farm enthusiasts. There is strong advocacy of home supply of meat, milk, poultry products, and vegetables and fruits, but there is clear-cut recognition that the farmer wants those products of industrial civilization which necessitate commercial farming and cash income.

The modern world of technology and its effect upon agricultural practices is explicitly recognized. But there may be question as to whether modern technology can be efficiently utilized upon small acreages as widely as the authors indicate. There is no explicit desire to escape the complications of the modern world. There is a chapter entitled "You Can't Escape into Farming," and the theme is eventually repeated several times, although seemingly not always with complete conviction. The policies and the programs that are proposed or supported are based upon a fundamental recognition of the interdependence of farmers with the rest of society. This is not social escapism but rather the reverse, and as such is to be commended.

The authors would seek the strengthening and perpetuation of the small farm fundamentally through social action as distinguished from the action of individuals. They are enthusiastic supporters of cooperatives, the SCS, the FSA, the USDA generally, and of planning and socially minded measures to conserve land and to assist and preserve the family farm. They see a cleavage between the large and the small farmers, and feel that the small farmer's interest is identified with urban labor and even with farm labor, rather than with the larger farmers or with representatives of urban capital. The Farm Bureau, the Grange, the Associated Farmers, several of the large cooperative associations, and the Farm Bloc are pictured as unfriendly to small farmers.

A PROGRAM is advocated which includes the extension of the Social Security

Act to include farmers and farm laborers, rural taxation based entirely on income rather than on land value, and a sharp reduction of interest charges for agricultural credit. Many of the ideas seem good, though not new. The book would have been much more substantial if it had discussed these proposals thoroughly, in terms of specific means to be employed and ultimate ends to be gained.

The authors are men of wide reading and experience. They speak of the very different conditions of agriculture in some other parts of the country. But their farm philosophy appears deeply colored by their own experience in Bucks County, and there may be considerable question how well it could be adapted to many other areas where small farmers face quite different circumstances.

The tone of the book is definitely liberal in the sense that the authors are motivated by a desire to see economic benefits more widely and presumably therefore more equitably distributed. They want to equalize opportunity and relieve the oppressions of the poor, and they identify the more favored groups as the principal barrier to a realization of this ideal.

Roots in the Earth will probably appeal principally to city people. This is not to say it does not reveal a good knowledge of farm practices—it does. But it emphasizes phases of farming and social ideals which are more directly the concern of urbanites who wistfully look at the beautifully rolling countryside than of farmers intent on the price of hogs in Chicago. The style in which the book is written features a self-conscious rusticity and much synthetic, cellophane-wrapped earthiness. There is also a foreword by Louis Bromfield that does the book a disservice by suggesting an obscurantism in what is to follow that fortunately does not develop.

—*Paul H. Johnstone*

THE BAYOUS OF LOUISIANA. By *HARNETT T. KANE*. W. Morrow & Company. New York. 340 pages.

A FEW HOURS spent with Mr. Kane's readable account of what he has seen and known in the bayou country in southwestern Louisiana leave us feeling that here is one of the most distinctive corners of the whole United States. His book is not intended for scientists and historians, but even they will appreciate the skill with which this newspaper man, author of the very different *Louisiana Hayride*, shows how nature and man have worked together in developing its life and ways.

From his first chapter, "Pattern in Life and People," we get a sense of the bayou as something which is neither a constant current nor a stagnant swamp and of the way in which drainage from the land to the north and tides and winds from the Gulf struggle for supremacy in this land in the making. The struggle is of course most apparent to the South, where the region still teems with an amazing variety of life on paw and wing and fin. Very varied too are the human strains that have found foothold here. Indian, Spanish, English, and many others have left their mark, but it is the French peasant who has left the deepest stamp.

Mr. Kane confines his story to the sections he himself knows intimately, but fortunately these cover both the more changing and watery country near the Gulf and the more stable lands behind. He introduces us to the Wet Front Yard, the area just east of the mouth of the Mississippi, where the battle between land and sea still goes on. Here the pirogues of the trappers must "travel on a dew" along narrow shifting bayous, the houses are often no more than stilted shacks perched

on precarious bits of soil, and a hurricane can sweep away an outlying island with its summer hotels and visitors. On the southern edge large-scale fish, shrimp, and oyster industries now carry on with workers of all nationalities.

Progress was easier further inland, where fixed soil made agriculture possible, at least in spots. Bayou Lafourche, for example, winds its slow length to the Gulf and its natural and improved levees have produced two narrow strips of fertile land which, taken up in the patriarchal French way, now give unbroken successions of small holdings. The bayou, by boat and bridge, has thus become "the longest village street in the world." Life along its banks is rooted in old French custom and religion, though adapting itself to the political and economic developments of the country to which its people give wholehearted allegiance. The speech is predominantly French, but isolation from the mother-country and additions from Indian, Spanish, and English neighbors have made it a thing by itself.

LIFE is not easy, nor does wealth pile up, but if we can believe Mr. Kane's picture, there can be few places where people derive more genuine satisfactions from the combination of good hard work with strong family ties, open-handed friendliness, and a wealth of simple good times. A sign of the last is the prosperous business in records of French folksongs and dances which are in high favor for the many gay festivals in every community.

More like the traditional Old South is the Teche country. Here better lands have meant more prosperous existence and allowed a few great estates with romantic stories of luxury in the wilderness.

The chapter "Where the Buggies Roll" takes us still further north, where the features of the bayou region merge into those of the prairie country. Grain, cattle, and horses make the scene look quite different. Nevertheless, in language, in old-time customs, and in leisurely, neighborly ways it resembles Bayou Lafourche. Throughout, the pictures really illustrate the text. Eventually we hope Mr. Kane will tell us whether the other parts of the bayou region are equally distinctive and illuminating for the interplay of land, water, and racial stocks.

—Helen W. Atwater

BURNING AN EMPIRE. By *STEWART H. HOLBROOK*. The Macmillan Company. New York. 229 pages.

LET NO MAN who loves trees or the trillium of the forest floor plan to spend an easy evening with Stewart Holbrook's *Burning an Empire*. For before the first half hour is done, he will have gone through that ominous stillness that precedes a forest fire. The dimmed sun becomes a red ball, then darkness settles down. A blanket of spooky light is overhead, low rumblings on the horizon. Cats and dogs grow strangely restless. But why get panicky? We've seen smoke on the edge of these woods ever since we've lived here. The breeze gets stronger, that rumbling louder, the light brighter. Men rub smoke out of their eyes, clear their throats of ashes flying horizontal with the ground. Here and there fire breaks out from falling embers—nearer and nearer until the family abandons its home in the clearing and flee for their lives.

In town the wind-blown live coals birth blazes one after another. The explosive burning of the forest approaches; flame-tipped gusts of wind dart high into the sky, a flaming plank from an outlying sawmill falls in front of the bank on

Main Street. More blazes spring up. Fire engines and water hose are impotent. Frightened people clamber on a waiting train, which pulls out when the paint on the coaches begins to drip, and ends of the cross-ties are on fire. Or families pile into a swamp ahead of the stifling breaths of death, to be joined by wild animals who have lost their lesser fears.

More people have been killed by forest fires than were ever killed by the Indians; more timber destroyed by fires than has ever been harvested by timbermen. The author describes great fires: at Hinckley, Minn., in 1894, 400 people were burned to death; at Cloquet in 1918, the fatality list exceeded half a thousand. Among other fires described are the Peshtigo disaster in 1871, the great fires in Wisconsin in 1894, and in the Lewis River Valley of Oregon in 1902.

Fire in Idaho and Montana in 1910 so aroused the press and President Theodore Roosevelt that the ground work was laid for programs for systematic protection of forest lands. But even today more than one-third of our forest lands are wholly without protection. And in protected areas under certain weather conditions forest fires are still beyond man's control. In low humidity on hot days at the end of dry spells an accidental spark may set off a holocaust. When the Tillamook fire of Oregon in 1933 ran through dry Douglas firs, 3,000 men working around the clock made no impression. Twelve and one-half billion feet of sawable timber was burned—more than had been used the year before by all the sawmills, lathe mills, shingle mills, and pulp mills in the whole country.

SPECTACULAR among fires was the burning of the abundant gorse at Bandon, Oreg., 1936. The leaves are oily when green and when dry. A fire broke out and made holiday in the gorse, with great oily gobs exploding 50 or 100 feet in the air, throwing balls of fire across the roofs of the town. Man worked in vain. Death was at large.

After Holbrook's fire and thunder comes his insistent small voice: Even greater damage is done to the present and the oncoming forests by the many small fires. He speaks especially of fires in the South, which seldom make a headline or are the direct cause of a death, but which each year account for nearly two-thirds of the Nation's loss from forest fire.

He speaks knowingly of the cause of most forest fires—blazes to clear back the underbrush, to open up new land for cultivation and pasture, to keep back marauding animals from isolated homes. Our forests had been every man's enemy to be overcome before pioneers could support their families, before cities could be built. Then came automobiles, and people with picnic baskets and matches for a camp fire and a cigarette. And he reminds us that, since Pearl Harbor, Japanese planes have three times dropped firebombs in the forests on the Pacific coast.

Close-observer Holbrook has worked with the State and national forestry people. He writes hopefully of the efforts to control fire. And he reluctantly admits that even forest fires are not wholly without compensation, for aspen grows a thicker stand because of the increased suckers or shoots, while the stone-like cone of the jack pine, unresponsive to nature's ordinary efforts, will sprout only after intense heat on the forest floor has destroyed everything else.

But the reader is never allowed to become comfortable so long as he is uncertain about the last match he struck, and the last camp fire he enjoyed. Even Thoreau, New England's great nature lover, does not escape his own conscience, for he returned to Concord, one town meeting day in 1844, humbled by the hundred acres of "pretty woods along the Sudbury River" which his camp fire had set ablaze.

—*Arthur Raper*

THIS FASCINATING LUMBER BUSINESS. By *STANLEY F. HORN*. The Bobbs-Merrill Company, Publishers. Indianapolis, New York. 328 pages.

AS BOOKS with analogous titles dealing with the railroad and oil businesses are advertised on its cover, this is evidently one of a series relating to the part private industry plays in the American economy.

The story is told in an engaging fashion, enlivened with interesting historical and personal sidelights and anecdotes. The description of logging, lumber manufacture and seasoning, manufacture of allied products, distribution and marketing, although sketchy and perhaps superficial, should prove informative to the layman.

THE publisher's flyleaf keynotes the aim of the book as primarily to dispel a popular belief that there is danger of timber shortage and to cultivate confidence not only in wood as an adaptable and versatile material destined to play a continuing and widening part in the life of the Nation, but also in the ability and readiness of the lumber industry to meet conservation requirements. But the author's overoptimism on the resource situation and exaggeration of industry progress in forest practice lead the reviewer to discount the claim that the picture "is at once as complete, thorough and accurate as any expert could demand." For example, the statement that "sustained-yield cutting has been the practice of most of the timber owners in the [Northeast] for a long time" cannot be squared with the finding of a 1942 report of the National Resources Planning Board in New England that "only about 2 percent [of the commercial forests] can be said to be under sustained-yield management."

EVEN for the South, the region with which the author is most familiar, his optimism is not shared by the Executive Secretary of the Southern Pulpwood Conservation Association, who recently wrote, "The heavy drain on timber resources in this region, especially for pulpwood and sawlogs, has made members of the pulpwood industry definitely apprehensive lest the timber supply close to their mills be severely depleted, necessitating longer hauls . . . Furthermore there are, in my opinion, only a few areas in the South in which timber growth more than offsets total drain."

Overstatements on timber supply and timber growing will be exposed by thoughtful reading of subsequent chapters where evidences of regional timber depletion and of lost or waning forest industries frequently crop out. For example, stating that the great majority of all sawmills today are of the circular sort because band mills are "not justified except where there is the assurance of an adequate, long-time supply of timber or logs," seems to take the glow off the rosy picture of timber supply. And in the discussion of the pulp industry, the author admits that "in some regions . . . the competition between wood-using industries for the visible timber supply is already acute." The author, in another place, wisely commends the endeavor to integrate paper and lumber activities in order to realize maximum utilization of the available timber.

IT IS a disappointment to find no mention of the progress in or need for forest management and other research to achieve a permanently high level of forest productivity, along with the creditable account of the utilization research conducted by Government agencies, universities, forest products industries, and industry associations.

The reviewer agrees with the author that through publicity of recent years, "some people have been misled into thinking that the time is just around the corner when all the forest resources will be channeled into

the manufacture of chemical and synthetic materials." The points that much chemical utilization is based on the availability in large quantity of waste from the lumber industry and that tonnage requirements for chemical conversion are not likely to approach those for lumber and timber products might well have been further developed.

The book begins and ends on the question of timber supply. This emphasis on forest conservation in a book about the lumber industry and necessarily limited to highlights is significant. It reflects a widespread and encouraging recognition that forestry is of major public importance. Indeed, there is reason for justifiable pride in the number of industrial forest landowners who have adopted long-range forestry programs in recent years. But in the light of the inadequacy of the forest-growing stock, or capital, throughout the East, and the extent to which current requirements are being met by premature cutting of young timber, it is regrettable that the author, in his zeal to present the industry in its best light, merely echoes the industry's campaign of complacency which has been publicly challenged as misleading by the Chief of the Forest Service.

—*C. Edward Behre*

Let a person have nothing to do for his country and he will not care for it.

—JOHN STUART MILL

THE INDEX to Volume VI of the Land Policy Review will be mailed upon request made to the Bureau of Agricultural Economics. Also available upon request are copies of the Indexes for Volumes III, IV, and V.

WARTIME GOVERNMENT IN OPERATION. By *WILLIAM H. NICHOLLS* and *JOHN A. VIEG*. Sponsored by the American Council on Public Affairs. The Blakiston Company, Philadelphia. 109 pages.

"THE PURPOSE of this book is, therefore, to review wartime policy-making and administration in two selected fields—manpower and food—and insofar as possible to determine how general governmental attitudes and machinery may have prevented manpower and food programs from being as effective as they yet need to be." The authors reflect the industry and civic responsibility which have long characterized the scholars in the social studies at the Iowa State College, and the study is dedicated to T. W. Schultz.

The inquiry is focussed sharply on the statement of the record, in statutes and administrative orders in the two fields, and on the relevant attitudes and structure in Congress and the higher central directors of administration. It has too long been the fashion to ignore or deliberately depreciate the importance of structure and process in an attribution of supreme importance to vague "economic" factors. Hence the analysis of Congressional committee membership and procedure throws useful light on the meaning of the record.

The presentation of the administrative factor suffers somewhat from the avowed limitation self-imposed by the authors whereby the role of the bureaucracy is excluded from treatment here. That is their legitimate right. But much of the task of determining a public policy and inventing ways of implementing it comes, inevitably, if it comes at all, from the bureaucracy, whose function goes beyond "supervisory routine" and who must provide a knowledge and attitude of mind denied generally to the active protagonists of special interests.

If the final pages of recommendation do not seem as original and fresh as the fruitful conception of the study as a whole, it may be because here, too, one has to move beyond the self-imposed limitations to ask how far the American people are politically educated, geographically conditioned, and equipped by their experience and tradition, as well as institutionally organized, for the waging of a modern war in so sophisticated a manner.

Perhaps we have needed a longer period of assimilation of the crowded experience with problems whose emergence Turner noted in 1893. However, structure has been more important in the organization of thought, as Graham Wallas warned us, than it has been customary to admit; and the authors have given us a study which would serve admirably the uses of a discussion group—one composed of bureaucrats, let us say—exploring the question of what is the true nature and function and duty of the Departments of Agriculture, Commerce, and Labor. This is most useful pamphleteering on a problem of central importance.

—*John M. Gans.*

U. S. GOVERNMENT PRINTING OFFICE: 1944

IN THE PIEDMONT

We now plow horizontally following the curvature of the hills and hollows on dead level, however crooked the lines may be. Every furrow thus acts as a reservoir to receive and retain the waters; scarcely an ounce of soil is now carried away . . . In point of beauty nothing can exceed that of our waving lines and rows winding along the face of our hills and valleys.

—THOMAS JEFFERSON